

**INDIANA DEPARTMENT OF TRANSPORTATION
OFFICE OF MATERIALS MANAGEMENT**

**VERIFYING CALIBRATION SETTINGS FOR
SUPERPAVE GYRATORY COMPACTORS
ITM No. 908-08T**

1.0 SCOPE.

- 1.1** This test method covers the procedures for verifying calibration settings on an approved SUPERPAVE Gyratory Compactor (SGC).
- 1.2** The values stated in either acceptable English or SI metric units are to be regarded separately as standard, as appropriate for a specification with which this ITM is used. Within the text, SI metric units are shown in parenthesis. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other, without combining values in any way.
- 1.3** This ITM may involve hazardous materials, operations, and equipment and may not address all of the safety problems associated with the use of the test method. The user of the ITM is responsible for establishing appropriate safety and health practices and determining the applicability of regulatory limitations prior to use.

2.0 TERMINOLOGY. Definitions for terms and abbreviations shall be in accordance with the Department's Standard Specifications, Section 101.

3.0 SIGNIFICANCE AND USE. This ITM is used by laboratory personnel to verify the calibration settings on an approved SGC.

4.0 APPARATUS.

- 4.1** Digital Stopwatch, readable to 1 s
- 4.2** Dynamometer or load cell, National Institute of Standards and Technology (NIST) traceable in accordance with ASTM E 74 and calibrated every 24 months
- 4.3** Precision gauge blocks, NIST traceable and calibrated every 24 months
- 4.4** Device for verifying the external angle of gyration

5.0 PROCEDURES.

5.1 General.

- 5.1.1** Use the manufacturer's calibration equipment and procedures for verification of the speed of gyration, ram pressure, ram position, and external angle of gyration.
- 5.1.2** Turn on the SGC and allow the SGC to warm up for approximately 15 minutes or the manufacturer's recommended time prior to verifying the calibration settings.
- 5.1.3** If any of the calibration settings are outside the specified tolerances of 6.0, a new calibration shall be performed for all of the parameters.

5.2 Speed of Gyration.

- 5.2.1** Set the SGC for 30 revolutions and start the machine
- 5.2.2** Record the time for the 30 gyrations using the stopwatch

5.3 Ram Pressure.

- 5.3.1** Center the dynamometer or load cell under the ram
- 5.3.2** If the dynamometer is used, flex the device to the maximum load required during calibration
- 5.3.3** Apply a force with the SGC. The SGC shall load the ram to a minimum of two forces spanning the full capacity of the SGC.
- 5.3.4** Record the force indicated on the load cell. If the dynamometer is used, record the deflection and determine the force from the conversion chart of the dynamometer.

5.4 Ram Position.

- 5.4.1** Insert the gauge blocks under the ram so that the height of the blocks is 6 in. (152.40 mm)
- 5.4.2** Apply a force with the SGC
- 5.4.3** Record the height indicated on the control panel

5.5 Angle of Gyration.

5.5.1 Attach the appropriate indicator for determination of the external angle of gyration

5.5.2 Verify that the measurement indicates that the allowable tolerance of the external angle is within $\pm 0.02^\circ$ (± 0.35 mrad)

6.0 TOLERANCES.

6.1 The speed of gyration shall be 30 gyrations in 60 ± 1 s.

6.2 The ram pressure shall be within ± 3 percent of the pressure indicated on the SGC.

6.3 The ram position shall be within ± 0.004 in. (0.1 mm) of the height of the gauge blocks.

6.4 The external angle shall be $\pm 0.02^\circ$ (± 0.35 mrad) from the established external angle. The dial indicator value shall be within the verification range.

**SUPERPAVE Gyratory Compactor Verification
ITM 908**

SGC Model: _____ Serial No: _____ Machine Hours: _____

Dynamometer/Load Cell Serial No.: _____ Calibration Date: _____

Gauge Block Serial Nos.: _____ Calibration Date: _____

Speed of Gyration 30 gyrations in 60 ± 1s	Ram Pressure				
	Applied Load – Load Cell		Applied Load - Dynamometer		
	Displayed	Actual	Deflection	Force	Actual

Ram Position		External Angle	
Height		Dial Indicator Value (Second - First = Value)	Verification Range
Displayed	Actual		
		Second: _____ First: _____ Value: _____	
		Second: _____ First: _____ Value: _____	

Remarks: _____

Verified by: _____

Date: _____

Next Due Date: _____